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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,769	03/31/2004	Zhiwei Dong	SIL.0002US (P-04-100-1005)	8864
21906 7590 03/30/2010 TROP, PRUNER & HU, P.C. 1616 S. VOSS ROAD, SUITE 750 HOUSTON, TX 77057-2631			EXAMINER CHAN, RICHARD	
			ART UNIT 2618	PAPER NUMBER
			MAIL DATE 03/30/2010	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/814,769	<b>Applicant(s)</b> DONG ET AL.	
	<b>Examiner</b> RICHARD CHAN	<b>Art Unit</b> 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13, 26-36 and 43-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 26-36, and 43-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Response to Arguments***

Applicant's arguments with respect to claims 1-13, 26-36, and 43 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-13, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Rodeffer (US 5,507,025).

Regarding claim 1 and 26, Rodeffer, specifically Fig.15 discloses the apparatus and method comprising:

receiving a satellite signal spectrum in a receiver; (dish 101)

and determining a local oscillator (LO) frequency for a signal channel corresponding to a channel selected by a user(Col.6 line 18-20, teaches wherein the user has control over the bandwidth, which in turn is translated in channels) within the satellite signal spectrum, (Col.11 line 48-55) the LO frequency being outside of a signal band of the signal channel and away from a center of a widest signal channel (Rodeffer

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specifically discloses frequencies of both LO and Center frequencies Col. 5 line 34-44) by greater than half of a signal band of the widest signal channel and less than half of a passband width of a baseband filter of the receiver. (Control Circuit 412 controlling the LO frequency based on reference frequency of previous stage LO)

Regarding claim 2, Rodeffer discloses the method of claim 1, further comprising selecting the LO frequency from a first LO selection region and a second LO selection region, each of which are adjacent to a signal channel. (Col.1 line 36-44, specifically wherein each of the satellite channels are spaced 40 Mhz, which is considered adjacent channels)

Regarding claim 3, Rodeffer discloses the method of claim 2, further comprising selecting the LO frequency to be outside of the signal band of the signal channel by at least a first amount to avoid  $1/f$  noise and a DC offset effect. (Col.1 line 58-63)

Regarding claim 4, Rodeffer discloses the method of claim 1, further comprising determining an error value corresponding to a frequency error of a LO generating the LO frequency. (error being offset with respect to pass band 502, Col.8 line 45-48)

Regarding claim 5, Rodeffer discloses the method of claim 4, further comprising storing the error value in a storage medium. (Col.12 line 40-49)

Regarding claim 6, Rodeffer discloses the method of claim 1, wherein the baseband filter has a smallest passband width that is wider than a width of the widest signal channel and half of a LO-step frequency, wherein the receiver comprises one tuner. (Control Circuit 412 controlling the LO frequency based on reference frequency of pervious stage LO)

Regarding claim 7, Rodeffer discloses the method of claim 1, further comprising: mixing the satellite signal spectrum (mixer 403) with the LO frequency (from 1<sup>st</sup> LO 404) to obtain a downmixed signal 415; and filtering the downmixed signal using the baseband filter. (Bandpass filter 406)

Regarding claim 8, Rodeffer discloses the method of claim 7, further comprising selecting the LO frequency to cause a center frequency of the downmixed signal to be at a center of a passband of the baseband filter. (Col.5 line 27-38)

Regarding claim 9, Rodeffer discloses the method of claim 1, further comprising determining a new LO frequency for a new signal channel within the satellite signal spectrum, the new LO frequency being outside of a signal band of the new signal channel and an offset region surrounding the new signal channel. (Col.5 line 38-44)

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Regarding claim 10, Rodeffer discloses the method of claim 9, further comprising selecting the new LO frequency so that it does not interfere with one or more existing LO frequencies. (Col.7 line 51-62)

Regarding claim 11, Rodeffer discloses the method of claim 10, further comprising selecting the new LO frequency from a LO candidate selection region that is outside a crosstalk region surrounding the one or more existing LO frequencies. (Col.7 line 51-62)

Regarding claim 12, Rodeffer discloses the method of claim 11, wherein the LO candidate selection region is outside a crosstalk region surrounding harmonics of the one or more existing LO frequencies. Col.7 line 51-62)

Regarding claim 13, Rodeffer discloses the of claim 11, further comprising maintaining parameters of existing signal channels when tuning the new signal channel. (Col.8 line 19-28)

Regarding claim 43, Rodeffer specifically discloses wherein the apparatus of claim 26, wherein the selection circuit is to determine the first LO frequency to be away from a center of the first signal channel by greater than half of the signal band of the first signal channel and less than half of a passband width of the first baseband filter. (Col.6

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line 18-20, teaches wherein the user has control over the bandwidth, which in turn is translated in channels and Col.8 line 11-15))

Regarding claim 44, Rodeffer specifically discloses wherein a system comprising: first analog tuning circuitry to mix a satellite signal spectrum with a first local oscillator (LO) frequency to obtain a first signal channel corresponding to a channel selected by a user, and first LO circuitry to determine the first LO frequency from a range of frequencies that is outside of a signal band of the first signal channel;

and first digital tuning circuitry to receive the first signal channel, convert the first signal channel to a first digital signal and to digitally filter the first digital signal using a first controllable frequency generated by a first numerically controlled oscillator (NCO) that receives a center frequency for the first signal channel.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 27-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rodeffer (US 5,507,025) In view of deSantis (US 4,858,225).

Regarding claims 27, 30, and 33 Rodeffer discloses the apparatus of claim 26, wherein an channel is selected by a user (Col.6 line 18-20, teaches wherein the user has control over the bandwidth, which in turn is translated in channels) however does not specifically further disclose a second tuner to receive the satellite signal spectrum; and a second oscillator to generate a second LO frequency to be mixed with the satellite signal spectrum to obtain a second signal channel.

The deSantis reference, specifically Fig.6 discloses a multiple tuner (number Nx amount of tuners) for a satellite router wherein multiple input signals are input into a parallel circuit 112 via transmission line 118. Traffic is split into many parallel channels through bandpass filter 113 becoming different channels, these signals outputted by the multiple tuner are then inputted into multiplexer 130.

It would have been obvious at the time of the invention to implement the multi-tuner satellite and multiplexer of deSantis to the satellite receiver of Rodeffer in order for the satellite receiver to be able to handle multiple channels at the same time and choose the channel of preference multiplexer selection.

Regarding claims 28, 31, and 34 Rodeffer and deSantis combined disclose the apparatus of claim 27, 30, and 33, Rodeffer continues to disclose wherein the selection circuit is adapted to determine a new LO frequency, wherein the new LO frequency does not interfere with an existing LO frequency. (Col.7 line 51-62)



Regarding claim 29, Rodeffer and deSantis combined discloses the apparatus of claim 28, Rodeffer continues to disclose wherein the selection circuit determines the new LO frequency based on a crosstalk region of the existing LO frequency and a frequency location of an existing signal channel and a new signal channel. (Col.7 line 51-62)

Regarding claim 32, Rodeffer and deSantis combined disclose the apparatus of claim 30, Rodeffer continues to disclose wherein the selection circuit is adapted to select one of the first LO frequency or the second LO frequency for use in obtaining the third signal channel from the satellite signal spectrum, (Col.5 line 38-44) and deSantis discloses wherein the apparatus further comprises a multiplexer. (multiplexer 130)

Regarding claim 35, Rodeffer and deSantis combined disclose the apparatus of claim 33, wherein the selection circuit is adapted to select one of the first LO frequency, the second LO frequency, or the third LO frequency for use in obtaining the fourth signal channel from the satellite signal spectrum, wherein the apparatus further comprises a multiplexer. (Col.14 line 62- Col.15 line 35)

Regarding claim 36, Rodeffer and deSantis combined disclose the apparatus of claim 33, wherein the first tuner, the second tuner, the third tuner, and the fourth tuner are adapted on a single integrated circuit. (Fig.6 deSantis)

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5. Claims 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rodeffer (US 5,507,025) In view of Cabot (US 5,136,267)

Regarding claim 45, Rodeffer discloses the system of claim 44, further comprising: second analog tuning circuitry to mix the satellite signal spectrum with a second LO frequency to obtain a second signal channel corresponding to a second channel selected by the user, (Col.8 line 11-15, specifically discloses wherein a 1<sup>st</sup> and 2<sup>nd</sup> oscillators are controller by the user to directly tune the reception based on user's preferences) the LO and second LO circuitry to determine the second LO frequency from a range of frequencies that is outside of a signal band of the second signal channel; (Col.11 line 48-55)

However Rodeffer does not specifically disclose wherein a second digital tuning circuitry to receive the second signal channel, convert the second signal channel to a second digital signal and to digitally filter the second digital signal using a second controllable frequency generated by a second NCO that receives a center frequency for the second signal channel.

The Cabot reference, specifically Fig.8 and Col.4 line 57-Col.5 line 10 discloses wherein a bandpass tunable digital filter is implemented to be able to be tunable by direct adjustment.

It would have been obvious to one of ordinary skill in the art to implement the digital filter as disclosed by Cabot to the tuning circuitry of Rodeffer in order to be able to filter out digital input signals within the baseband unit.

Regarding claim 46, Rodeffer and Cabot combined disclose the system of claim 45, Cabot continues to disclose wherein the first analog tuning circuitry, the first digital tuning circuitry, the second analog tuning circuitry and the second digital tuning circuitry are integrated on a single integrated circuit. Fig.8 and Col.4 line 57-Col.5 line 10

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD CHAN whose telephone number is (571)272-0570. The examiner can normally be reached on Mon-Fri 10AM-6PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571)272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nay A. Maung/  
Supervisory Patent Examiner, Art Unit 2618

/Richard Chan/  
Examiner, Art Unit 2618

/ 3/31/10